

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 15 SEP 2004

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Applicant's or agent's file reference BP105981	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/FI 2003/000370	International filing date (day/month/year) 14-05-2003	Priority date (day/month/year) 31-05-2002
International Patent Classification (IPC) or national classification and IPC H04Q 7/38, H04B 7/00		
Applicant NOKIA CORPORATION et al		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
 - a. ☐ (sent to the applicant and to the International Bureau) a total of 25 sheets, as follows:
 - ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
 - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
 - b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

- | | | |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the report |
| <input type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> | Box No. VIII | Certain observations on the international application |

Date of submission of the demand 11-12-2003	Date of completion of this report 26-08-2004
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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP 2003/000370

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of:

- ☐ international search (under Rules 12.3 and 23.1(b))
☐ publication of the international application (under Rule 12.4)
☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

☐ the international application as originally filed/furnished

☒ the description:

pages 1-2, 6-21 as originally filed/furnished

pages* 3, 4, 5 received by this Authority on 2004-06-09

pages* _____ received by this Authority on _____

☒ the claims:

pages _____ as originally filed/furnished

pages* 22-26 as amended (together with any statement) under Article 19

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☒ the drawings:

pages 1-14 as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing (*specify*): _____

☐ any table(s) related to the sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing (*specify*): _____

☐ any table(s) related to the sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP 2003/000370

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1-27</u>	YES
	Claims		NO
Inventive step (IS)	Claims	<u>1-27</u>	YES
	Claims		NO
Industrial applicability (IA)	Claims	<u>1-27</u>	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

Documents cited in the International Search Report:

D1: WO 0131958 A1
D2: US 2001008521 A1
D3: EP 0 984 581 A1
D4: US 2002027890 A1
D5: EP 0946076 A2
D6: US 6385437 B1
D7: GB 2314734 A

D1 describes a method for performing a transition from a continuous communication mode into a combined slotted communication mode and measurement mode in a mobile station of a cellular radio system, comprising the steps of: providing a set of certain criteria to be observed during the continuous communication mode; wherein the step of providing a set of criteria comprises the sub step of providing a criterion which is fulfilled if a base station of the cellular radio system seems to be not responding to power control commands asking for more downlink power while preparations for an inter-cell handover are not in progress; observing, whether at least one of said criteria is fulfilled during the continuous communication mode; and as a response to the fulfilment of at least one of said criteria is fulfilled during the continuous communication mode, changing the operation of the mobile station into the combined slotted communication mode and measurement mode, wherein the step of observing, whether at least one of said criteria is fulfilled during the continuous communication mode, comprises the sub step of observing, whether or not a serving base station is responding to a number of successive power control commands asking for more downlink power, (pages 1-4).

.../...

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: BOX V

D2 describes a method for preparing an interfrequency handover of a certain communication connection from a first frequency to a second frequency, the method comprising the following steps of: periodically intermitting the transmission/receipt of data on the first frequency for certain transmission gaps, where the number of transmission gaps is at least one during each transmission period, a certain sequence of transmission periods is used, and at least one transmission period has a transmission gap having a first duration and a second transmission gap having a second duration, which second duration is different from the first duration, and performing measurements on the second frequency during the transmission gaps on the first frequency. Adequate number of synchronization symbols can be transmitted periodically even when there is increase in transmission power, (page 1 part 1 - page 7 part 77).

D3 describes a method for controlling interfrequency handover (=handover between different frequencies) of a mobile station, the mobile station comprising communication, slotted (=compressed), and measurement mode. The mobile station changes the operation into the combined slotted communication mode and measurement mode for preparing an interfrequency handover, (column 28 parts 138). By establishing the synchronization with another frequency carrier based on detected first and second search codes, interfrequency handover is carried out, and by establishing the synchronization with GSM based on the detected FCCH and SCH, inter communication system handover is carried out. In the transmission in the compressed mode, non-transmission timing is provided in the downlink frame, and can be set to a desired period of time (duration). This non-transmission timing represents idle period during which the strength (= power) of the other frequency carrier is measured. In this way, slotted transmission can be achieved by inserting the idle period during transmission of compressed mode frames. In the compressed mode, the same transmission power as in the normal mode is used to intermittently transmit a compressed frame at a lower transmission rate than in the normal mode; therefore, during a handover between frequencies, the amount of interference power to other users on the same frequency is reduced, whereby a handover between frequencies with reduced interference can be achieved. (Column 3, part 16 - column 19, part 95).

.../...

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of: Box V

D4 or D5 describe A method of controlling a frequency handover in a wireless communication system in which a mobile station communicates with one or more base stations, the method comprising the steps of: generating a trigger metric as a function of a measure of receive power at the mobile station; and utilizing the trigger metric to control a handoff from a current frequency to a new frequency in an ongoing call, wherein the handoff is performed without utilizing any signal-to-noise measures for pilot signals at the new frequency, (D5 column 2 part 5 - column 3 part 8).

D6 describes a power control method for a mobile station having transmission frames, at least one compressed mode transmission frame including a transmission duration when data is transmitted on a first frequency, and a transmission-off duration for searching another frequency in order to perform an inter-frequency handover, the transmission duration having increased transmission power, the method comprising the steps of: resetting, in a base station, a power control threshold depending on a length of the transmission-off duration; and receiving, in the base station, transmission power-increased data; comparing a power of a received signal with the power control threshold; generating a power-up command when the power control threshold is higher than the received signal power; and generating a power-down command when the power control threshold is lower than the received signal power, (column 4 lines 27 - 61).

The invention defined in claims 1-27 is not disclosed by any of these documents. The cited prior art does not give any indication that would lead a person skilled in the art to the claimed method of providing a flexible and straightforward method for controlling interfrequency handovers by comparing the quality of the communication connection to target value based on an interference control of the communication connection, wherein the target value depends on the quality target value used in downlink outer loop power control of the communication connection. Therefore, the invention defined in claims 1-27 is not obvious to a person skilled in the art. Accordingly, the invention defined in claims 1-27 is novel and is considered to involve an inventive step. The invention defined in claims 1-27 is industrially applicable.

D7 describes the prior art of the invention.